

CLAIMS

1. A pattern identification method of identifying a pattern of input data by hierarchically extracting features of the input data, characterized by

5 comprising:

a first feature extraction step of extracting a feature of a first layer;

an analysis step of analyzing a distribution of a feature extraction result in the first feature

10 extraction step; and

a second feature extraction step of extracting a feature of a second layer higher than the first layer on the basis of the distribution analyzed in the analysis step.

15 2. The method according to claim 1, characterized in that in the second feature extraction step, likelihoods of a plurality of features of the second layer are calculated on the basis of the distribution, and a feature whose calculated likelihood is not less than a
20 predetermined value is extracted as an object.

3. The method according to claim 1, characterized in that in the first or second feature extraction step, a feature obtained by performing a predetermined transformation to a predetermined feature is extracted.

25 4. The method according to claim 1, characterized by further comprising a re-extraction step of re-extracting a feature of a lower layer on the basis

of a feature extraction result of a higher layer in the second feature extraction step.

5. The method according to claim 1, characterized in that in the analysis step, a distribution of each of
5 the plurality of feature extraction results is analyzed, and a relative relationship between analytical results is analyzed.

6. The method according to claim 1, characterized in that in the analysis step, a distribution within a
10 specific range of at least one of the feature extraction results is analyzed.

7. The method according to claim 1, characterized in that in the analysis step, whether the feature is extracted or not extracted within a predetermined range
15 in a distribution of at least one of the feature extraction results is analyzed.

8. The method according to claim 1, characterized in that in the analysis step, a barycenter of a distribution of at least one of the feature extraction
20 results is analyzed.

9. The method according to claim 1, characterized in that in the analysis step, a size of a range within which the feature is extracted or not extracted in a distribution of at least one of the feature extraction
25 results is analyzed.

10. The method according to claim 1, characterized in that in the analysis step, a likelihood of at least one

of the feature extraction results or a total of feature detection levels is analyzed.

11. The method according to claim 1, characterized in that the pattern identification is performed on the
5 presence/absence of a face image contained in the input data.

12. The method according to claim 1, characterized in that the pattern identification is performed on a position of a face image contained in the input data.

10 13. A pattern identification apparatus for identifying a pattern of input data by hierarchically extracting features of the input data, characterized by comprising:

first feature extracting means for extracting a
15 feature of a first layer;

analyzing means for analyzing a distribution of a feature extraction result obtained by said first feature extracting means; and

second feature extracting means for extracting a
20 feature of a second layer higher than the first layer on the basis of the distribution analyzed by said analyzing means.

14. A pattern identification program for allowing a computer to identify a pattern of input data by
25 hierarchically extracting features of the input data, characterized by comprising:

a first feature extraction step of extracting a

feature of a first layer;

an analysis step of analyzing a distribution of a feature extraction result in the first feature extraction step; and

- 5 a second feature extraction step of extracting a feature of a second layer higher than the first layer on the basis of the distribution analyzed in the analysis step.

15. A pattern identification method of identifying a
10 pattern of input data by hierarchically extracting features of the input data, characterized by comprising:

a first feature extraction step of extracting a feature of a first layer; and

- 15 a second feature extraction step of extracting a feature of a second layer higher than the first layer by one on the basis of a feature extraction result in the first layer and a feature extraction result in a layer other than the first layer.

- 20 16. The method according to claim 15, characterized in that the layer other than the first layer is a layer lower than the first layer.

17. The method according to claim 15, characterized in that the layer other than the first layer is the
25 second layer.

18. The method according to claim 15, characterized by further comprising an integrating step of

integrating feature extraction results by a plurality of feature extractors in the same layer.

19. A pattern identification apparatus for identifying a pattern of input data by hierarchically
5 extracting features of the input data, characterized by comprising:

first feature extraction unit for extracting a feature of a first layer; and

10 second feature extraction unit for extracting a feature of a second layer higher than the first layer by one on the basis of a feature extraction result in the first layer and a feature extraction result in a layer other than the first layer.

20. A pattern identification program for causing a
15 computer to identify a pattern of input data by hierarchically extracting features of the input data, characterized by comprising:

a first feature extraction step of extracting a feature of a first layer; and

20 a second feature extraction step of extracting a feature of a second layer higher than the first layer by one on the basis of a feature extraction result in the first layer and a feature extraction result in a layer other than the first layer.